

REMARKS

Applicants respectfully request reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow.

Status of Claims:

No claims are currently being added.

Claims 1-6, 30 and 31 are currently being canceled.

Claims 10 and 12 are currently being amended.

This amendment and reply cancels and amends claims in this application. A detailed listing of all claims that are, or were, in the application, irrespective of whether the claims remain under examination in the application, is presented, with an appropriate defined status identifier.

After canceling and amending the claims as set forth above, claims 10, 12 and 24 are now pending in this application.

Indication of Allowable Subject Matter:

Applicants appreciate the indication in the final Office Action that claim 24 is allowed.

Claim Objections:

In the final Office Action, claim 10 was objected to, for reasons set forth on page 2 of the final Office Action. Due to the amendments made to claim 10, this objection is believed to have been overcome.

Claim Rejections – Indefiniteness:

In the final Office Action, claim 12 was rejected under 35 U.S.C. § 112, 2nd paragraph, as being indefinite, for the reasons set forth on pages 2 and 3 of the final Office Action. Due to the amendments made to claim 12, this rejection is believed to have been overcome.

Claim Rejections – Prior Art:

In the final Office Action, claims 1-6 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent Publication No. 2002/0097495 to Mei; claims 30 and 31 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Mei in view of U.S. Patent No. 6,379,867 to Mei; and claims 10 and 12 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Publication No. 2002/0000426 to Mead et al. in view of Mei and further in view of U.S. Patent No. 5,691,541 to Ceglio et al. These rejections are traversed with respect to the presently pending claims under rejection, for at least the reasons given below.

With respect to the rejection of claims 10 and 12 based in part on Mead et al., that reference is not directed to a pattern writing system, and so it is unclear how it can be combined with the other cited art of record.

More specifically, Mead et al. discloses a laser via drilling system and a device thereof. To this end, two or more laser systems 1105 and 1107 are used in the laser via drilling system to achieve processing parameter flexibility (abstract). In addition, an optical system is located between the laser system 1105 and 1107 and a workpiece and comprises a plurality of mirrors, a cube polarizer 1113, and wave plates 1131, 1133. At any rate, Mead et al. controls a pulse shape, a pulse rate, and a pulse length of each output beam generated from a plurality of the laser systems. Specifically, the system disclosed by Mead et al. is advantageous for achieving higher repetition rates or longer pulse durations (see paragraph 0040 of Mead et al.) and is effective to ablate a portion of a material (see claim 1 of Mead et al.), namely, to form a via in the material (see claim 4 of Mead et al.). In addition, a plurality of pulses are generated from a third laser system and have a third pulse repetition rate, a third average peak power per pulse, and a third average pulse duration (see claim 10 of Mead et al.).

However, no consideration is made at all in Mead et al. about a pattern writing system and about realizing a level of gradations, because Mead et al. only describes forming blind vias or through-hole vias (see paragraph 0003 of Mead et al.).

The pattern writing system according to presently pending independent claim 10 is illustrated best in Figures 15 to 17 of the drawings, and is directed to the second embodiment of this invention (see page 17, lines 25 to 26 of the specification). This means that the pattern writing system illustrated in Figures 15 to 17 of the drawings is concerned with that illustrated in Figures 10 to 14 of the drawings, and carries out an operation similar to the system illustrated in Figures 10 to 14 of the drawings, whereby they can be collectively called the second embodiment.

Taking the above into consideration, the pattern writing system according to claim 10, and as exemplified in Figures 15 to 17, performs the operation in a manner similar to that illustrated in that shown in Figures 11 and 12 and, as a result, partially overlaps patterns a plurality of times to realize a level of gradations determined by overlapped times of the spots, as exemplified in Figures 10 to 14.

On the other hand, Mei et al. does not disclose or suggest realizing a level of gradations, and it also does not disclose or suggest using a plurality of mirror devices and a plurality of laser systems. As such, it is impossible from the teachings of Mei et al. to come up with a system that averages a plurality of laser lights to realize the level of gradations.

Inasmuch as no teaching is made at all in Mead et al. about realizing the level of the gradations by partially overlapping patterns a plurality of times by the use of a plurality of laser systems, presently pending independent claim 10 is patentable over the combination of Mead et al. and Mei and Ceglio et al. (which does not rectify the above-mentioned deficiencies of Mead et al. and Mei).

Conclusion:

Since all of the issues addressed in the final Office Action have been addressed in this Amendment and Reply, Applicants believe that the present application is now in condition for allowance, and an early indication of allowance is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing or a credit card payment form being unsigned, providing incorrect information resulting in a rejected credit card transaction, or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicants hereby petition for such extension under 37 C.F.R. § 1.136 and authorize payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

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